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Publication Date

2008-11-10

HIFAN 1594

**Simulations of ion beam heated targets for warm dense matter
(WDM) physics and inertial fusion energy**

by

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November 2007

This work was supported by the Director, Office of Science, Office of Fusion Energy Sciences, of the U.S. Department of Energy under Contract No. DE-AC02-05CH11231.

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This work was supported by the Director, Office of Science, Office of Fusion Energy Sciences, of the U.S. Department of Energy under Contract No. DE-AC02-05CH11231.

Simulations of ion beam heated targets for warm dense matter (WDM) physics and inertial fusion energy*, J. Barnard, A. Friedman, M. Marinak, L.J. Perkins, *LLNL*, J. Armijo, F. Bieniosek, E. Henestroza, M. Leitner, B.G. Logan, R. More, P. Ni, G. Penn, P. Roy, P. Seidl, J. Wurtele, A. Zeballos, A. Zylstra, *LBNL*, R. Davidson, L. Grisham, I. Kaganovich, *PPPL*, C. Debonnel, *CEA/DIF*, P. Stoltz, S. Veitzer, *Tech-X* -- We present simulations and analysis of ion beam heating of foil targets in the WDM regime for prospective experiments on the Neutralized Drift Compression Experiment (NDCX-1) and its proposed upgrade (NDCX-II). The simulations were carried out using the multi-physics rad/hydro code HYDRA¹, as well as the 1D codes DPC² and DISH³. Calculations of droplet radius evolution and ion energy deposition refinements were carried out. Initial simulations of direct drive capsules using temporally tailored ion beams will also be presented.

*This research was performed under the auspices of the U.S. DOE by UC, LLNL and LBNL under Contract Numbers DE-AC03-76SF00098 and W-7405-Eng-48, and by PPPL under DEAC02-76CH03073.

¹M. M. Marinak, et al, *Phys. Plasmas* **8**, 2275 (2001); ²R. More, et al, *JQSRT* **99**, 409 (2006); ³DISH is a Deeply Simplified Hydrodynamics code authored by R. More, June 2007.